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Pronotum about as in *signatifrons*; lateral angles and five longitudinal lines white; two apical dots and an irregular arcuated spot or band on the anterior submargin and a cloud on the posterior disc dusky or piceous; scutellum marked as in *signatifrons*, or with the apical field mostly brown. Elytral nervures broadly white tinged with testaceous in places, the areoles quite uniformly edged with fuscous. Wings highly iridescent; tergum and all beneath black, edges of all the segments and pleural pieces pale. Legs spotted and banded with pale. The female has the last ventral segment and legs pale, with the hind edge of the former and the base of the anterior and intermediate femora and a few spots on the tibiæ brown; the spines long, stout and pale in both sexes.

Genital characters: ♂.—Last ventral segment feebly concave behind; valve short, the hind edge nearly straight, very feebly angled at the middle; plates short and broad, triangular, obtuse at apex; pygofer a little longer than the plates, the broad arcuated apex appearing beyond their tips. Female: Last ventral segment a little longer than the preceding, but slightly shorter on the middle, regularly concavely arcuated behind, the lateral angles prominent, right angled; pygofer broad, their obtuse apex nearly equaling the stout oviduct.

Mississippi. Described from numerous examples received from Mr. Howard Ewarts Weed, whose industry has brought to light many new and interesting members of the little-known Jassid fauna of the "Mississippi Bottoms," and it is with pleasure I embrace this opportunity of acknowledging my indebtedness to his labors and generosity by dedicating to him this neat little species.

THE NORTH AMERICAN PEMPHREDONIDÆ.

BY WILLIAM J. FOX.

Before proceeding I wish to thank Mr. E. T. Cresson and Prof. C. V. Riley for favors received. I have made this paper as short as possible, omitting all generic descriptions, as in a few years the rapidly increasing number of new species will undoubtedly demand a more exhaustive treatise on them. The types of all our species have been before me, except those few described by Say and Kohl, and of course those which I have been unable to identify. The following table, taken from Cresson's "Synopsis," will serve to distinguish the genera:

Anterior wings without a third discoidal cell, therefore only one recurrent nervure.

Anterior wings with two submarginal cells.

Abdomen subsessile; recurrent nervure joining the first transverse cubital nervure.....**Spilomena** Shuck.

Abdomen petiolate; recurrent nervure received in the middle of the first submarginal cell**Stigmus** Jur.

Anterior wings with one submarginal cell**Ammoplanus** Gir.

Anterior wings with three complete discoidal cells, therefore with two recurrent nervures.

Abdomen distinctly petiolate, the petiole long; head and thorax generally hairy..... **Pemphredon** Latr.

Abdomen subsessile, or with a very short petiole; head and thorax not hairy.

Posterior tibiæ unarmed (the calcaria excepted); labrum pointed at tip.

Passalœcus Shuck.

Posterior tibiæ spinose, or subserrate; labrum emarginate at the tip.

Diodontus Curt.

PEMPHREDON Latreille.

FEMALES.

The submarginal cells each receiving a recurrent nervure.

Dorsulum with strong transverse wrinkles.

Anterior margin of the clypeus in the middle subtruncate, not at all angular; petiole of abdomen nearly as long as the first two joints of the hind tarsi united..... **concolor.**

Anterior margin of the clypeus in the middle forming an angle; petiole of abdomen but little if anything longer than the first joint of the hind tarsi **angularis.**

Dorsulum punctate, or with very faint wrinkles and punctures.

Anterior margin of the clypeus strongly emarginate medially; dorsulum punctured, and in addition with some indistinct wrinkles; petiole fully as long as the first joint of the hind tarsi..... **Rileyi.**

Anterior margin of the clypeus in the middle with two strong emarginations, or strongly tridentate; dorsulum punctured only; petiole slightly shorter than the first joint of the hind tarsi..... **nearcticus.**

The recurrent nervures both received by the first submarginal cell.

Dorsulum with large, rather close punctures.

Anterior margin of the clypeus produced medially; * smooth space on metathorax broadly lunulate, the enclosed space with irregular rugæ; petiole distinctly longer than the hind coxæ and trochanters united.

inornatus.

Anterior margin of clypeus emarginate medially; smooth space on metathorax divided by a furrow, the two parts together forming a narrow lunule; the enclosed space laterally with radiating ridges, medially with irregular ridges; petiole shorter than the hind coxæ and trochanters united **bipartior.**

Dorsulum with large, very sparse punctures..... **tenax.**

MALES.

The submarginal cells each receiving a recurrent nervure.

Joints of the flagellum not angular or denticulate beneath.

Clypeus with a wide emargination; enclosed space on metanotum rugose.

Head from above scarcely twice as broad as long in the middle, much narrowed behind; petiole a little longer than the first joint of the hind tarsi..... **concolor.**

* The student must not be deceived by the labrum which projects in the species of this section.

Head from above fully twice as broad as it is long in the middle, not much narrowed behind; petiole about equal to the first joint of the hind tarsi in length. **angularis.**

Clypeus with two emarginations medially; enclosed space on metanotum longitudinally striated; petiole distinctly longer than the first joint of the hind tarsi. **nearcticus.**

Joints 3-8 of the flagellum more or less angular or denticulate beneath.

Enclosed space on metanotum longitudinally striated throughout; apical margins of ventral abdominal segments 2-5 whitish; petiole nearly as long as the first two joints of the hind tarsi united. **Rileyi.**

Enclosed space on metanotum strongly excavated or depressed on basal half, this portion with longitudinal ridges or striations, the apical half smooth; ventral abdominal segments entirely black; petiole a little longer than the first joint of hind tarsi. **confertim.**

The recurrent nervures both received by the first submarginal cell.

Head from above fully twice as broad as it is long in the middle, therefore it is very transverse; pale hair on head and thorax very conspicuous.

..... **inornatus.**

Head from above not by any means twice as broad as it is long in the middle, therefore it is almost quadrate; pale hair on head and thorax inconspicuous. **tenax.**

1. *Pemphredon concolor* Say.

♀.—Anterior margin of the clypeus in the middle subtruncate; front and vertex with coarse dense punctures, which become sparse and less strong on the occiput and cheeks, in addition the front has a few wrinkles laterally; ocellar region slightly raised, alongside each of the hind ocelli there is an oblique, distinct impression and another longitudinal one on the vertex behind them; head from above almost quadrate, not very much narrowed behind; clypeus with large, sparse punctures; third joint of the antennæ fully one-third longer than the fourth; dorsulum with coarse, close wrinkles, which originate in the medial furrow, extending transversely a short way and then turn backwards; scutellum and postscutellum with longitudinal wrinkles; enclosure on metathorax above depressed, channeled medially and with coarse irregular rugæ; the tibiæ with a few spines; petiole of abdomen nearly as long as the first two joints of the hind tarsi united, roughened above, furrowed on the sides. Abdomen shining, with very sparse and fine punctures, the apical segment above with a rather deep channel, which is broadest basally; black, covered sparsely with pale hairs, which are most obvious on the clypeus, cheeks, metathorax and petiole; basal half of wings hyaline, the remainder fuscous; nervures and stigma dark testaceous. Length 13 mm.

♂.—Anterior margin of clypeus broadly and roundly emarginate; front with coarse, dense punctures, those on the vertex and cheeks sparse; no impressions in the vicinity of the ocelli. Head from above scarcely twice as broad as it is long in the middle, much narrowed behind; antennæ long, almost reaching the tegulæ, third joint but little (about one-fifth) longer than the fourth, joints 6-9 rounded out beneath, especially the seventh and eighth; dorsulum with large, separated punctures, which are closest anteriorly; scutellum also coarsely punctured; enclosure on upper surface of metathorax not so much depressed as in the female, with irregular, coarse rugæ, indistinctly channeled medially, at the

base there is a transverse row of large fossæ; tibiæ not at all spinose; petiole of abdomen a little longer than the first joint of the hind tarsi. Abdomen shining, with very sparse and fine punctures, the punctures stronger and closer on the apical segment; colored like the female; the pale hair is denser and more obvious; face with silvery pile. Wings subhyaline throughout, iridescent, nervures testaceous, costal vein and stigma black. Length 8 mm.

Northwest territory (Say); Colorado; New Hampshire; Massachusetts.

2. *Pemphredon angularis* n. sp.

♀.—Anterior margin of the clypeus in the middle produced into a strong angle; front longitudinally wrinkled and punctured; top of head and cheeks with large, sparse punctures; ocelli situated in slight pits, especially the anterior one; vertex without a longitudinal impression. Head from above scarcely as long as in *concolor*, narrowed more behind; clypeus with large, sparse punctures; third joint of antennæ fully one-third longer than the fourth; dorsulum as in *concolor*, but the wrinkles are not so coarse, and are more distinct; scutellum with large, coarse punctures; enclosure on metathorax above not or very slightly depressed; distinctly channeled medially, with coarse, irregular wrinkles, which are strongest and most widely separated basally; tibiæ not so distinctly spinose as in *concolor*; petiole of abdomen but little, if anything longer than the first joint of the hind tarsi. Abdomen shining, very sparsely and finely punctured, the apical segment above flat, not furrowed; black, very sparsely clothed with pale hairs, which are most obvious on the clypeus, cheeks, metathorax and petiole; wings subhyaline, nervures and stigma testaceous. Length 12 mm.

♂.—Anterior margin of clypeus with a wide, rounded emargination; front with coarse, dense punctures and a few indistinct wrinkles laterally; vertex and cheeks with large, separated punctures, which are equally close on the cheeks as on the vertex; head from above fully twice as broad as it is long in the middle, not near so much narrowed behind as *concolor*; antennæ almost reaching the tegulæ, joints 6-9 rounded out beneath, especially the seventh and eighth; dorsulum with large, separated punctures, which are most dense anteriorly; scutellum also coarsely punctured, furrowed down the middle; enclosure on upper face of metathorax indistinctly channeled, the rugæ strongest on basal portion; tibiæ not at all spinose; petiole of abdomen about equal to the first joint of the hind tarsi in length. Abdomen shining, with very sparse and fine punctures; colored like the female; the pale hair denser; face silvery. Wings slightly fuscous on apical portion, nervures and stigma testaceous. Length 10 mm.

New Hampshire. Greatly resembles *concolor*, but is narrower.

3. *Pemphredon Rileyi* n. sp.

♀.—Anterior margin of the clypeus strongly emarginate in the middle; front with strong, dense punctures, which become sparse on the sides and towards the vertex; top of head and cheeks with large, sparse punctures, those on the cheeks closest; ocelli slightly pitted. Head from above nearly quadrate, very slightly narrowed posteriorly; third joint of antennæ fully one-third longer than the fourth; dorsulum with large, shallow punctures and in addition with distinct, irregular wrinkles; scutellum also with wrinkles and punctures; enclosed space on metanotum longitudinally striated, indistinctly channeled medially, the posterior face of metathorax punctato-rugose. Legs rather robust, the tibiæ more

strongly spinose than in either of the two preceding species; petiole of abdomen fully as long as the first joint of the hind tarsi; abdomen shining with very sparse and fine punctures, the apical segment above broadly channeled, the channel deepest basally and becomes almost obliterated at the apex; black, rather densely clothed with pale hair. Wings subhyaline, nervures and stigma varying from testaceous to black. Length 8—9 mm.

♂.—Anterior margin of clypeus emarginate medially, but not widely so in the two preceding species; sculpture of front hidden by the dense fuscous hair, but is probably densely and coarsely punctured; top of head and cheeks punctured like the female; head from above much more narrowed behind than in the female, not by any means twice as broad as it is long in the middle; antennæ short, not reaching beyond the collar, third joint about one-quarter longer than the fourth, joints 3-8 of the flagellum more or less angular or denticulate beneath; dorsulum and scutellum scarcely wrinkled, the punctures distinct; metathorax as in the female; tibiæ not spinose; first joint of medial tarsi greatly thickened to the apex, presenting a club-shaped appearance; petiole of abdomen nearly as long as the first and second joints of the hind tarsi combined; colored like female, except that the apical margins of ventral abdominal segments 2-5 are whitish; clypeus silvery. Length 7—9 mm.

California: San Mateo County (March, April), Monterey County (April), Placer County (September). Dedicated to Prof. C. V. Riley.

4. *Pemphredon confertim* n. sp.

♂.—Very close to *Rileyi*, but differs as follows: the anterior margin of the clypeus is broadly emarginate; dorsulum without any trace of wrinkles, with large, sparse punctures, the anterior portion with a wide foveolate furrow in the middle; enclosed space on metanotum strongly depressed or excavated on basal half, this portion is longitudinally ridged or striated, the apical half smooth, a strong medial channel extends from its base to apex; first joint of middle tarsi more elongate, the apex not so thick; petiole of abdomen about as long or a little longer than the first joint of the hind tarsi; pubescence not so dense; ventral abdominal segments entirely black. Length 11 mm.

One specimen; Easton, State of Washington (Koebele). This species and *Rileyi* are from the collection of the United States Nat'l Museum.

5. *Pemphredon nearcticus* Kohl.

♀.—Anterior margin of the clypeus in the middle with two strong emarginations, or strongly tridentate; front with strong, close punctures, but they are not so dense as in *Rileyi* or *confertim*; punctures on top of head very sparse, even more so on the cheeks. Head from above nearly quadrate, very slightly narrowed behind; third joint of antennæ fully one-third longer than the fourth; dorsulum anteriorly strongly and closely punctured, posteriorly the punctures are larger and sparse; scutellum with large, sparse punctures; enclosure on metanotum longitudinally striated; the striæ not attaining the apex, channeled medially, the posterior face finely punctato-rugose; tibiæ rather strongly spinose; petiole of abdomen slightly shorter than the first joint of hind tarsi, its upper surface concave. Abdomen shining, with very fine and sparse punctures, the

apical segment with a long narrow channel, its sides parallel; black, sparsely clothed with pale hair. Wings subhyaline, a cloud in the marginal cell fuscous, nervures and stigma dark testaceous. Length 9—11 mm.

♂.—Anterior margin of the clypeus as in the female, except that the middle tooth is by far the smallest; front with strong, close punctures; top of head more closely punctured than in the female, likewise the cheeks, on the latter the punctures are finest. Head from above distinctly narrowed behind, but hardly as much as in *Rileyi*; antennæ rather long, reaching much beyond the collar, third joint about one-quarter longer than the fourth, none of the joints dentate, the seventh to tenth rather distinctly rounded beneath; dorsulum and scutellum punctured like in the female, the striæ on metanotum attaining the apex; first joint of medial tarsi somewhat bent and thickened towards the end; petiole of abdomen distinctly longer than the first joint of the hind tarsi; colored like the female. Length 8—9 mm.

Nevada.

6. *Pemphredon inornatus* Say.

♀.—Anterior margin of the clypeus in the middle produced into a sharp tooth or projection, which is somewhat reflexed; front with strong, close punctures; top of head with very strong scattered punctures, those on the upper part of cheeks much closer and finer, on the lower part, however, they again become strong and sparse. Head from above nearly quadrate, very slightly narrowed behind; third joint of antennæ fully one-third longer than the fourth; dorsulum anteriorly strongly and closely punctured, on the remaining portion the punctures become much larger and sparser; scutellum also very strongly punctured; enclosed space on metanotum laterally with several longitudinal ridges, medially the ridges are irregular and form large fossæ, the smooth space broadly lunulate, the inner margin of which is produced into an angle in the middle, the posterior face strongly rugose; petiole of abdomen distinctly longer than the hind coxæ and trochanters united, nearly as long as the first two joints of the hind tarsi. Abdomen shining the last dorsal segment with a rather broad, shallow groove, which is most distinct apically; black, clothed with long, pale hairs; sides of face silvery. Wings hyaline, nervures and stigma testaceous. Length 7—8 mm.

♂.—Anterior margin of the clypeus rather strongly emarginate in the middle; front with strong, close punctures; top of head and cheeks punctured as in the female. Head from above distinctly narrowed behind, fully twice as broad as it is long in the middle, therefore it is very transverse; third joint of antennæ but little longer than the fourth, joints 6-9 rather strongly rounded out beneath, rugæ in the enclosed space on metanotum longitudinal throughout, smooth space as in the female, except that it is not quite so well marked; first joint of medial tarsi elongate, straight, not very much, though distinctly and gradually thickened towards the apex. Abdomen shining, with very fine and distinct punctures; colored like the female; the pubescence more dense; clypeus silvery. Wings slightly fuscous on apical portion. Length 5—6 mm.

Canada (Prov.), New York, New Jersey, Virginir, N. Carolina, Illinois, Nevada. This and the following species belong to the Section. *Diphlebus* Westwood, having both recurrent nervures received by the first submarginal cell, and not to *Cemonus* Jurine as several authors supposed.

7. *Pemphredon bipartior* n. sp.

♀.—Anterior margin of the clypeus in the middle emarginate; front with strong close punctures; top of head and cheeks punctured like *inornatus*. Head from above nearly quadrate, longer than in *inornatus*, and is possibly a little more narrowed behind; third joint of antennæ barely one-third longer than the fourth; ocelli rather strongly pitted, the anterior one much the smallest; dorsulum with large, not very sparse punctures, which are most compact and less strong anteriorly; enclosed space on metanotum larger than in *inornatus*, and is more triangular, the rugæ somewhat similar, but are of course longer, the smooth space divided into two parts by a furrow, the parts together form a narrow lunule; the posterior face with very coarse, close punctures, which are not broken into rugæ as in *inornatus*; petiole of abdomen about as long as the hind coxæ and trochanters united, at any rate not longer. Abdomen shining, the last dorsal segment not furrowed, but presenting a flat appearance; colored as usual. Length 5.5–6 mm.

Texas (collection U. S. Nat. Mus.). Two specimens from District of Columbia, which probably belong to another species, though at the present time I feel doubtful about their distinctiveness; they are much larger and appear intermediate between *bipartior* and *inornatus*.

8. *Pemphredon tenax* n. sp.

♀.—Anterior margin of the clypeus in the middle produced into a sharp tooth or projection; although the punctures of the front are strong and close, they are neither as strong or as close as in either of the two preceding species. Head from above almost quadrate, scarcely narrowed behind; third joint of antennæ barely one-third longer than the fourth; dorsulum, except the extreme basal portion, almost impunctate; rugæ of enclosed space on metanotum longitudinal, though somewhat irregular, and are finer and closer than in the two preceding species; the smooth space broadly lunulate, divided by a furrow, the posterior face strongly rugose or rugged, the hind tarsi stouter than usual; petiole of abdomen about as long as the hind coxæ and trochanters combined, not as long as the first joint of the hind tarsi. Abdomen shining, the segments rather distinctly punctured on apical half, the last dorsal segment not furrowed, though somewhat depressed and with large punctures; of the usual color; pubescence very sparse. Length 7–8 mm.

♂.—Anterior margin of the clypeus emarginate in the middle; front with large, not very close punctures, third joint of antennæ but little longer than the fourth, joints 6–10 rounded out beneath. Head from above distinctly narrowed behind, not by any means twice as broad as it is long in the middle; dorsulum sparsely punctured anteriorly, impunctate on remaining portion; enclosed space on metanotum with irregular rugæ, the smooth space narrower than in the female. Abdomen shining, with fine, but distinct punctures. Wings subhyaline, slightly fuscous on apical portion. Length 6 mm.

Canada, Virginia, Illinois, Colorado, Washington.

UNIDENTIFIED.

Pemphredon concolor Prov.

"♀.—Length .40 pce. Black, without markings, with long, whitish hairs; clypeus polished, shining, with clear scattered punctures, without silvery pile, but with yellowish hairs in front. The front above the antennæ finely aciculate. Palpi black, mesothorax without a very distinct median line, and without striæ, but uniformly and densely punctured; scutellum with longitudinal striæ; propodeum with its reniform part with striations, strong and irregular at base, more fine and oblique towards the sides. Wings hyaline basally, slightly obscured on their apical half, stigma black, the lower nervure of the first submarginal cell straight. Legs immaculate, the femora with long, whitish hairs. Abdomen polished, shining, in the form of a pointed oval, its petiole rugose about one-third of its length, the anal segment above narrowly channeled, the petiole with the terminal segment haired."

"Cap Rouge." This is evidently distinct from *concolor* Say.

Pemphredon montanus Dhlb.

"*Mas* vix 4 lin. long; antennæ and palpi apice, anoque infra piceo-fulvis; dorsulo nitido oblique punctulato subtilissime parceque strigoso."

"*Femina* subsemipollicaris antennis nigrofuscis; dorsulo opaco confertim coriaceo-strigoso; scil. antice transversim strigoso, postice autem et versus scutellum utrinque sculptura strigosa eleganter gyrata vel subcirculari. Valvula analis dorsalis subsemiconica parce punctata; area media s. antica plana lata (h. e. duplo latiore quam canaliculo in *Pemphr. lugubris* ♀, sed angustiore quam areis proximus lateralibus triangularibus), lineari, coriacea punctis perpaucis majoribus, versus apicem submarginata, apice lata obtusa."

Europe; British Columbia (Kohl).

Pemphredon (?) marginatus Say.

"Black; antennæ at base, mandibles and feet honey-yellow."

"Body polished; antennæ blackish; first and second joints honey-yellow; the former as long as the second and third together, which are nearly equal; mandibles honey-yellow, not very obviously denticulated at tip. Wings tinted with fuliginous; nervures brown; stigma fuscous, not much dilated; nervures of the second recurrent nervure margined with whitish, the latter abbreviated before the anal tip. Abdomen sessile; with the exception of the first segment, piceous blackish; feet honey-yellow. Length over three-twentieths of an inch."

"The second cubital cell is somewhat larger than usual, and the nervures which form it, as well as the second recurrent nervure, are less distinct than usual."

DIODONTUS Curtis.*FEMALES.*

1. All the tibiæ more or less yellowish.....2.
Tibiæ not, or the fore tibiæ only yellowish3.
2. Apex of femora, the tibiæ and tarsi yellowish; metanotum rather finely rugose. Length 5 mm.....**occidentalis.**

- Four hind tibiæ medially and the fore tibiæ behind, black; metanotum with strong fossulets. Length 6 mm **Gillettei**.
3. "Mandibles white, reddish at tip; dorsulum more densely and minutely punctured anteriorly than on the disc"..... **americanus**.
Mandibles black; dorsulum densely punctured apically **nigritus**.

MALES.

1. Joints 9-12 of the antennæ serrated beneath; mandibles yellowish 2.
Joints 9-12 of the antennæ not serrated beneath; mandibles black; tibiæ and tarsi yellow..... **flavitaris**.
2. Metanotum rather finely rugose; tibiæ more or less black... **occidentalis**.
Metanotum strongly rugose or rugged; tibiæ entirely yellow..... **rugosus**.

1. **Diodontus occidentalis** n. sp.

♀.—Emargination of labrum deep and wide, forming two very acute teeth; front shining, distinctly but sparsely punctured, the longitudinal impressed line strong; mandibles and clypeus with sparse, long, pale hairs; cheeks punctured like the front, the vertex and occiput much more closely punctured; ocelli situated in slight pits; dorsulum distinctly punctured, the punctures more close anteriorly; scutellum punctured like the dorsulum strongly impressed down the middle; mesopleuræ and metathorax rugose, the metanotum indistinctly enclosed, without a longitudinal furrow; collar and prothorax on sides with coarse, oblique striations. Wings hyaline, nervures testaceous, stigma black; femora glabrous, the tibiæ armed with bristle-like spines. Abdomen shining, with exceedingly close and fine punctures; ventrally the punctures are coarse and sparser; pygidium triangular, with large, sparse punctures. Black; abdomen with sericeous pile; face on sides in certain lights silvery; mandibles, except tips, tegulæ, tubercles, tibiæ and tarsi yellowish, the apical portion of the tarsi darker. Length 5 mm.

♂.—More elongate than the female, emargination of labrum not so wide and deep, the teeth formed by it obtuse; front subopaque, very densely punctured, having the appearance of being granulose, not impressed down the middle; vertex and occiput with distinct separated punctures; antennæ almost filiform, joints 3-5 about equal in length, joints 6-11 also about equal, but are longer than 3-5, the twelfth shorter than the eleventh, the last one fully as long as the scape, joints 9-12 serrate beneath; dorsulum just before scutellum very closely punctured; scutellum not so closely punctured as the dorsulum, not impressed medially. Black; mandibles, except tips, spot on tegulæ, fore tibiæ in front, the remaining tibiæ, except a black line within, and tarsi, except apical portion, yellowish. Length 4-5 mm.

Southern California; Arizona. Seven specimens.

2. **Diodontus rugosus** n. sp.

♂.—Not elongate, of the same form as the female of *occidentalis*; emargination of labrum wide, but not deep; front subopaque, densely punctured, but has not the appearance of being granulose; the ocelli situated in pits, that which contains the anterior one most distinct; vertex and occiput with distinct separated punctures; antennæ slightly setaceous, joints 3 and 4 united a little shorter than the fifth and sixth, which are, if anything, a little longer than the seventh

and eighth, joints 9-12 more distinctly serrated than in *occidentalis*, the apical joint not as long as the scape, eleventh and twelfth joints about equal in length; dorsulum shining, finely and closely punctured; sides of prothorax not so strongly striated as in *occidentalis*; metathorax more strongly rugose, almost rugged; the lateral margins of the posterior face of metathorax with two strong teeth or projections; tibiæ not so distinctly armed as in *occidentalis*; mandibles, tegulæ and legs, except the middle tibiæ, which has a black line within, colored like the female of *occidentalis*. Length 4-4.5 mm.

Montana; Illinois.

3. ***Diodontus flavitarsis*** n. sp.

♂.—Of the same form as *rugosus*, and differs as follows: emargination of labrum neither wide or deep; front shining, the punctures fine and close, and has the appearance of being longitudinally striated, when viewed in certain positions, the medial impressed line faint, but distinct; antennæ almost filiform, not at all serrated beneath, fourth joint slightly longer than the third, joints 4-11 about equal in length, the twelfth longer than any of the preceding nine, this joint longest, but shorter than the scape; the metathorax rugose or rugged, the lateral margins of the posterior face without teeth or productions; mandibles black, otherwise colored as *rugosus*, except that the medial tibiæ are entirely yellow. Length 4.5 mm.

Colorado. One specimen.

4. ***Diodontus americanus*** Pack.

“♀. Body black, shining and polished; clypeus smooth and shining; antennæ entirely black; scape black; mandibles white, reddish at the tip; palpi dark fuscous; surface of the head smooth polished, with much fewer, minute, shallow punctures than usual, scarcely pubescent, except on the orbits, where it is thinly so. Mesoscutellum with the mesial and submesial lines distinct, parallel, very contiguous, surface anteriorly more densely and minutely punctured than on the disk; metascutellum more fully colored than the scutellum; propodeum with no distinct enclosure, or distinct mesial furrow; anterior portion with no unequal, parallel, straight lines proceeding from the base; posteriorly an irregular net-work of shallow, broad fossulets. Tegulæ and insertion of the wings testaceous; nervures blackish, pterostigma black; wings iridescent; flanks of the thorax distinctly corrugated on the more convex surface, smooth and shining in the depressions. Legs black, tarsi dark fuscous; tibiæ with two rows of spinules; tibial spurs large, testaceous, and tarsal joints more than usually spinose at tip, base as long. Length .22 inch.”

Brunswick, Me. (Packard).

5. ***Diodontus Gillettei*** n. sp.

♀.—Labrum —?; front shining with fine dense punctures, the medial impressed line wanting; cheeks very sparsely punctured, the vertex even more so; the anterior ocellus situated in a deep pit, so that it is much smaller than either of the other two, these two in slight pits; dorsulum rather sparsely punctured, densely so before the scutellum; scutellum sparsely punctured, with a very slight impression; mesopleuræ strongly rugose or rugged, with traces of oblique striæ on posterior portion only; metathorax above with irregular fossulets,

the posterior face with larger fossulets, but they are not so well defined; the metapleuræ with some coarse folds. Abdomen as in *nigritus*, except that the pygidium is longer and is coarsely punctured throughout; black, shining; mandibles, except apical portion, tegulæ, tubercles, apex of femora, fore tibiæ in front, the remaining tibiæ at base and apex, and the tarsi more or less, yellowish. Length 6 mm.

Fort Collins, Col. (C. P. Gillette), one specimen. The abdomen in this species is more distinctly petiolate than in any of the others.

6. *Diodontus nigritus* n. sp.

♀.—Emargination of labrum strong, the teeth formed by it obtuse; front shining, with strong separated punctures, the medial impressed line faint; the cheeks and vertex more sparsely punctured than the front; ocelli situated in slight pits, especially the anterior one; dorsulum punctured like front, the punctures dense before the scutellum; scutellum punctured likewise, with a strong, medial impression; mesopleuræ and metapleuræ with strong, oblique rugæ, the metathorax above and behind with strong, irregular, broad fossulets, which are larger on posterior face. Wings hyaline, iridescent, nervures and stigma black; tibiæ armed with bristle-like, testaceous spines. Abdomen shining, with exceedingly fine and close punctures, beneath the punctures are larger and more sparse; pygidium on basal half with large, sparse punctures; black, shining; clypeus, mandibles and legs, sparsely clothed with pale hairs; tegulæ and tibial spurs testaceous. Length 5—6.5 mm.

Colorado. Five specimens bearing the mss. name *nigritus* Cress. The general appearance of this species and *Gillettei* is like *Passalæcus*.

AMMOPLANUS Giraud.

Ammoplanus? columbianus Kohl.

"Length 3 mm. Black, the mandibles, the anterior tibiæ, a basal ring on the middle and posterior tibiæ and the tarsi yellow; the posterior tarsi brownish, ♀.

"Clypeus with a raised middle part, which has at its base a pointed protuberance, below this the middle part is lightly impressed. Die Fühler sind nicht so sehr weit unten wie bei *Celia troglodytes* oder *Ammoplanus Perrisii* am Kopfschild selbst eingelenkt, so das die Einlenkungsbeulen nicht neben dem höckerigen Mitteltheile, sondern oberhalb des Kopfschildes, auf der Stirne zu stehen kommen. Frontal line distinct. The triangle formed by the position of the ocelli, has a decidedly less height than in *Celia troglodytes*, in which it is almost equilateral. Collar deep under the level of the dorsulum (this is of an entirely different form than in *Celia troglodytes*, having a straight line in front, with obtuse side angles): the mesopleuræ show the longitudinal furrow going above from the episternal suture. Metathorax above quite netted, on the sides irregularly wrinkled. Dorsulum unusually finely wrinkled, nearly smooth; pleuræ more shining. On the upper half of the cubital transverse vein there is a stump of a vein, so that it seems to me as if a second cubital cell had disappeared through the partial combination of the second cubital transverse vein with the first, and by the obliteration of the part of the cubital vein which closes the second cubital cell behind."

British Columbia.

PASSALÆCUS Shuckard.*FEMALES.*

Third antennal joint distinctly longer than the fourth; the two longitudinal, parallel impressions on anterior portion of dorsulum not foveolate; legs black, front tibiæ in front and the base of the four hind tibiæ, yellow; tarsi testaceous. Length 6—8 mm ... **mandibularis.**

Third antennal joint not longer than the fourth; the two longitudinal impressed lines on the anterior part of the dorsulum strongly foveolate; apex of femora, tibiæ and tarsi yellow testaceous. Length 5 mm. **annulatus.**

MALES.

1. Antennæ not spinose or dentate beneath, but strongly rounded out, black above, white beneath2.

Antennæ spinose, or dentate beneath3.

2. Antennæ long, reaching a little beyond the tegulæ, third joint much shorter than the fourth, the apical joint about one-quarter longer than the preceding one; two impressed lines on anterior portion of dorsulum strongly foveolate. **annulatus.**

Antennæ shorter and stouter, scarcely reaching the tegulæ, third joint as long as the fourth, the apical joint about one-third longer than the preceding one; impressed line on anterior part of dorsulum not foveolate.

relativus.

3. Eleventh joint of antennæ much larger and broader than the others, angular, in consequence of which the two apical joints are turned backwards, joints 6—8 beneath with a slight spine at apex, joints 7—10 roundly emarginate. **distinctus.**

Eleventh joint of antennæ not larger or broader than the others, not angular.4.

4. Antennæ black beneath, joints 5—9 beneath spinose at tip, the tenth to twelfth joints incurved or roundly emarginate, so that their base has appearance of being dentate; space between hind ocelli about equal to that between them and the nearest eye margin..... **mandibularis.**

Antennæ testaceous beneath, joints 5—8 spinose at tip, the seventh and eighth indistinctly so, none of the remaining joints appearing dentate, but are rounded out; space between hind ocelli greater than that between them and the nearest eye margin..... **dispar.**

1. Passalæcus annulatus Say.

♀.—Front very finely and closely punctured, the punctures very dense medially, and become more sparse and distinct on the vertex; frontal impression distinct; ocelli situated in pits, the distance between the hind pair is about equal to that between them, and the nearest eye margin; third joint of antennæ about equal in length to the fourth, the apical joint about one-third longer than the preceding one; the cheeks even more finely punctured than the front; dorsulum punctured about like the front, the two longitudinal impressed lines on anterior portion very strong and foveolate, the lateral margins also strongly foveolate; scutellum and postscutellum similarly punctured, not impressed; metathorax above and posteriorly strongly rugose or rugged, the sides also rugose, except the basal portion, which is obliquely and finely striated; furrow which separates meso- and metapleuræ deep. Abdomen glabrous, impunctate; black; clypeus and

pectus silvery in certain lights; antennæ fuscous; scape beneath, mandibles, except apex and tubercles whitish yellow. Legs, except coxæ, yellowish testaceous, the femora more or less black. Wings hyaline, iridescent, nervures and stigma testaceous. Length 5 mm.

♂.—Form slender; front very finely and densely punctured, the punctures becoming sparse on the vertex; frontal impression strong; ocelli more strongly pitted than the female, the space between the hind pair is distinctly greater than the distance between them and the nearest eye margin; antennæ filiform, reaching beyond the tegulæ, the joints of the flagellum strongly rounded out beneath, third joint of antennæ much shorter than the fourth, the apical joint about one-quarter longer than the preceding one; dorsulum as in the female, possibly more finely punctured; scutellum with a distinct medial impressed line; metathorax not so strongly rugose as in the other sex, but with a strong medial furrow on upper surface, the basal portion of the metapleuræ smooth and not striated. Abdomen shining, with exceedingly fine and close punctures, ventrally the punctures more distinct; black; mandibles reddish at tip; antennæ beneath, except apical joint, tubercles and palpi whitish (sometimes the antennæ has the appearance of being ringed with white) the tibiæ and tarsi entirely and the femora in part, yellow-testaceous. Wings colored as the female. Length 4.5 mm.

Indiana (Say), Illinois, Massachusetts. I find no groove at tip of abdomen, mentioned by Packard.

2. *Passalœcus relativus* n. sp.

♂.—Front very finely and densely punctured, the punctures becoming distinct and separated on the vertex; frontal impression strong; ocelli deeply pitted, the space between the hind pair about equal to that between them and the eye margin; antennæ shorter and stouter than in *annulatus*, scarcely reaching the tegulæ, the joints not so strongly rounded out beneath, third joint, if anything, a little shorter than the fourth, the apical joint about one-third longer than the preceding one, at any rate it is distinctly more than one-quarter longer; dorsulum with exceedingly fine and close punctures, the impressed lines on anterior portion strong, not foveolate; scutellum not impressed; metathorax strongly rugose, the medial furrow on upper surface not so distinct as in *annulatus*, the metapleuræ with the basal portion obliquely and finely striated. Abdomen glabrous, impunctate, black; scape beneath, mandibles, except tips and tubercles, yellow; joints 3—12 of the antennæ beneath whitish on apical portion; tibiæ, tarsi and apex of the four anterior femora reddish yellow, the hind tibiæ with a black stripe. Wings strongly iridescent, nervures and stigma black. Length 5 mm.

Colorado.

3. *Passalœcus distinctus* n. sp.

♂.—Front very finely and densely punctured, the punctures more distinct on the vertex; frontal impression distinct; ocelli deeply pitted, the space between the hind pair is, if anything, slightly less than the distance between them and the nearest eye margin; third antennal joint slightly shorter than the fourth, the eleventh joint large and broad, somewhat angular, which causes the two following joints to turn backwards; joints 6—8 beneath with a slight spine at apex, joints 7—10 beneath incurved or roundly emarginate; dorsulum with very

fine and close punctures, the impressed lines on anterior portion strong and extend further than in any of the other species; scutellum medially impressed; metathorax strongly rugose, the posterior face with large fossulets, the basal portion of metapleuræ smooth, not striated. Abdomen with exceedingly fine and close punctures; black; scape beneath, mandibles, except tips and tubercles, whitish yellow; flagellum not pale beneath; anterior and middle femora more or less, the tibiæ and tarsi yellowish testaceous, a spot at base of middle and posterior tibiæ bright yellow. Wings strongly iridescent, nervures and stigma black. Length 6 mm.

Beverly, Mass.

4. *Passalœcus mandibularis* Cress.

♀.—Front with fine, very dense punctures; vertex also finely punctured, but not so densely as the front; frontal impression not strong; ocelli pitted, the space between the hind pair is, if anything, less than that between them and the nearest eye margin; third joint of antennæ longer than the fourth, the apical joint more than one-third longer than the preceding one; dorsulum very finely and closely punctured, but not so densely as the front, the two longitudinal impressed lines on anterior portion strong, but not foveolate, the lateral margins over the tegulæ foveolate; scutellum and postscutellum punctured like the dorsulum, not impressed; metathorax strongly rugose or rugged, the basal portion of the metapleuræ indistinctly striated. Abdomen glabrous, scarcely punctured, black; pectus, front and clypeus with sparse, silvery pile; scape beneath, labrum, mandibles, except tips, tubercles, anterior tibiæ in front, and the base of remaining tibiæ, yellowish white. Wings subhyaline, iridescent, nervures and stigma black, sometimes testaceous. Length 6—8 mm.

♂.—Front finely granulose, smooth and shining behind the antennæ, the impressed line faint; ocelli deeply pitted, the anterior one much smaller than the others, space between hind pair about equal to that between them and the nearest eye margin; third antennal joint shorter than the fourth, joints 5—9 beneath spinose at tip, the tenth to twelfth incurved, so that they have the appearance of being dentate, eleventh joint not broad nor angular; dorsulum very finely and closely punctured, the impressed lines on anterior portion distinct; scutellum very faintly impressed; metathorax strongly rugose, the rugæ more compact than in any of the other species. Abdomen glabrous, scarcely punctured, black; scape beneath except apex, mandibles except tips, tubercles, fore tibiæ in front, and the remaining tibiæ at base, yellow; apex of femora, four anterior tibiæ more or less, and the tarsi testaceous. Wings strongly iridescent, nervures and stigma black. Length 5—6.5 mm.

Colorado; Nevada; Mt. Hood, Oregon; Canada; Pennsylvania. The eastern specimens are the smallest. *P. cuspidatus* Sm., from Hudson's Bay, seems to be closely allied to, if not identical, with this species.

5. *Passalœcus dispar* n. sp.

♂.—Front very finely and densely punctured, the impressed line distinct; ocelli pitted, the space between the hind pair distinctly greater than that between them and the nearest eye margin; third antennal joint as long as the fourth, joints 5—8 beneath spinose at the tip, the seventh and eighth indistinctly

so, none of the remaining joints appearing dentate, being rounded out beneath, the apical joint about twice as long as the preceding one; dorsulum punctured as usual, the two impressed lines on anterior portion not strong; scutellum not impressed medially; metathorax strongly rugose, the basal portion of metapleuræ finely and obliquely striated. Abdomen glabrous, scarcely punctured; black; antennæ testaceous, palest beneath; scape beneath, mandibles, except tips, tubercles and spot on tegulæ, yellowish. Legs reddish testaceous, the coxæ, trochanters and femora, more or less black; the fore tibiæ in front and the remaining four at base yellowish. Wings hyaline, iridescent, nervures and stigma black; front and clypeus with silvery pile. Length 6—7 mm.

Nevada. Two specimens.

UNIDENTIFIED.

Passalœcus cuspidatus Sm.

"♀. Length $3\frac{1}{2}$ lines.—Black; the head finely and closely punctured; the scape in front, the labrum and mandibles yellow, the latter rufo-piceous at the apex; the palpi yellow. Thorax finely and closely punctured on the disk; the metathorax coarsely rugose; the wings fusco-hyaline, the costal nervure and stigma black, the nervures testaceous; the anterior tibiæ in front, the tubercles and base of the posterior tibiæ yellow; the apical joints of the tarsi fusco-ferruginous, the anterior pair palest. Abdomen: the petiole very short, rugose above; the abdomen smooth and shining."

Hudson's Bay. This species is evidently allied to, if not identical with, *P. mandibularis* Cress.

SPILOMENA Shuckard.

Spilomena pusilla Say.

"♀.—Head and thorax not shining like the abdomen; wings beautifully iridescent; mandibles, basal joints of antennæ, the tegulæ and legs, dull honey-yellow, tubercles black, the coxæ and femora more or less black; upper face of metathorax enclosed by two ridges which curve inwards to unite on the verge of the truncation, the enclosure transversely reticulated and divided into three areas by two longitudinal ridges; apical segment of the abdomen compressed and acuminate." (Patton)

Indiana (Say); Waterbury, Conn. (Patton).

STIGMUS Jurine.

FEMALES.

Clypeus not bilobate, at the most slightly emarginate medially.

Third joint of antennæ longer than the fourth, the second joint much shorter than either the third or fourth, apical joint not at all spatulate, pointed at tip. Length 4 mm **americanus.**

Third joint of antennæ about equal to the fourth, the second joint longer than either the third or fourth, apical joint somewhat spatulate. Length 5.5 mm **fraternus.**

Clypeus distinctly bilobate medially.

Joints of the flagellum irregular; dorsulum with very indistinct, sparse punctures; femora, except tips, black.....**inordinatus**.

Joints of the flagellum not, or the basal joints are slightly irregular; dorsulum with very fine, longitudinal striations; legs entirely fulvous..**fulvipes**.

MALES.

Apical joint of antennæ not spatulate, pointed at tip.

Third and fourth joints of the antennæ about equal in length, the third possibly a little the longer.....**americanus**.

Third joint of antennæ distinctly longer than the fourth.....**inordinatus**.

Apical joint of the antennæ somewhat spatulate.....**fraternus**.

1. **Stigma americanus** Pack.

♀.—Clypeus emarginate medially; inner eye margins rather strongly converging towards the mouth. Head glabrous, the frontal impression wanting, or very faint; head above almost quadrate, but it narrows distinctly behind; antennæ thickest medially, the joints not irregular, the third distinctly longer than the fourth, apical joint not at all spatulate; dorsulum indistinctly and sparsely punctured, between the very deep outer grooves on the fore part of the dorsulum it is very finely striated; metathorax rather strongly rugose, the upper surface with a longitudinal, somewhat ovate enclosure, which is divided by a strong medial ridge, within with transverse rugæ; mesopleuræ shining with three strong, foveolate furrows, which form a triangle; petiole of abdomen longer than the posterior coxæ and trochanters combined, strongly sulcate. Abdomen glabrous, black; mandibles, except tips, palpi and the tubercles, white; antennæ, tegulæ, tip of abdomen and legs, except the hind femora, yellow-testaceous. Wings hyaline, iridescent, the nervures and stigma testaceous. Length 4 mm.

♂.—Anterior margin of clypeus produced in the middle; inner eye margins strongly converging towards the mouth, more so than in the female, the space between the eyes at the clypeus is about one-third less than the vertex. Head glabrous, transverse, rounded behind, the frontal impression distinct, but faint; antennæ elongate, apical joint pointed at tip, not at all spatulate, third and fourth joints about equal in length; dorsulum as in the female; metathorax as in the female, except that the enclosure on upper surface is shorter and broader, and is irregularly sculptured within; petiole of abdomen decidedly longer than the hind coxæ and trochanters united, not as long as the first three joints of the hind tarsi united, strongly sulcate. Abdomen glabrous; black; clypeus with silvery pile; ornation as in the female. Length 4 mm.

Illinois; Beverly, Mass.; Camden County, N. J. (*June* 28, 1891).

2. **Stigma inordinatus** n. sp.

♀.—Anterior margin of the clypeus in the middle bidentate or bilobate; inner eye margins converging but little towards the mouth; frontal impressed line distinct. Head above transverse, distinctly narrowed behind; antennæ thickened apically, the joints irregular, third joint slightly longer than the fourth, the apical joint not at all spatulate; front on each side of impressed line rather strongly convex; dorsulum between the impressions on anterior portion finely striated, otherwise with indistinct, sparse punctures; scutellum not impressed;

metathorax covered with large fossulets, the upper surface with a large triangular enclosure, which contains three ridges, the two outer of which are oblique, the middle one straight, the enclosure has also some transverse rugæ; petiole of abdomen sulcate, but little longer if anything than the first joint of the hind tarsi. Abdomen glabrous; black; mandibles, except tips, scape in front and tubercles white; tegulæ, trochanters more or less, apex of four anterior femora, the four anterior and the base of the hind tibiæ and the tarsi yellowish testaceous. Length 4 mm.

♂.—Anterior margin of the clypeus subtruncate or incurved; inner eye margins rather strongly converging towards the mouth, the space between them at the clypeus is a little greater than that in *fraternus*. Head shining, indistinctly punctured; frontal impression strong; head more quadrate than in either *americanus* or *fraternus*; antennæ elongate, the apical joints thickened, the last joint elongate, its tip acute, third joint distinctly longer than the fourth; scutellum not impressed, if anything the scutellum and postscutellum are slightly elevated into an angle medially; enclosure on upper surface of metathorax forming a large, elongate hexagon, otherwise the metathorax is covered with fossulets; petiole of abdomen decidedly shorter than the first three joints of the hind tarsi united; black; clypeus and sides of face silvery; mandibles, except tips and tubercles, white; antennæ, except apical joints, which are fuscous, tegulæ, four anterior legs entirely, and the posterior legs, except femora and apical two-thirds of tibiæ, yellowish testaceous. Length 4 mm.

Colorado.

3. *Stigmus fraternus* Say.

♀.—Clypeus slightly emarginate medially; inner eye margins converging but little towards the mouth. Head glabrous, above more quadrate than in *americanus*, scarcely narrowed behind; frontal impressed line strong; antennæ elongate, scarcely thickened medially, the joints not irregular, the third joint about equal to the fourth in length, possibly the fourth is a little longer, the apical joint somewhat spatulate; dorsulum anteriorly in the region of the impressed lines, very finely and densely punctured, otherwise the dorsulum is glabrous; scutellum distinctly impressed; metathorax covered with a large fossæ, the upper surface with a somewhat fusiform enclosure, which is truncated at the base, the enclosure separated by a medial ridge, and has several transverse rugæ; triangular enclosure on mesopleura proportionately smaller than in *americanus*; petiole of abdomen longer than the hind coxæ and trochanters combined, about as long as the first hind tarsal joint, strongly sulcate. Abdomen glabrous; black; mandibles, except tips, palpi and tubercles, white; antennæ, tegulæ, tip of abdomen, the four anterior coxæ, the apex of the femora, all the tibiæ and tarsi, except the apical two-thirds of the tibiæ, yellowish testaceous. Wings hyaline, iridescent, the nervures and stigma testaceous. Length 5.5 mm.

♂.—Anterior margin of clypeus produced in the middle; inner eye margins strongly converging towards the mouth, the space between them at the clypeus is about one-third less than at the vertex. Head shining, very indistinctly punctured, transverse, but not so much narrowed behind as in *americanus*; frontal impression distinct; antennæ elongate, slightly thickened apically, the last joint somewhat spatulate; dorsulum as in the female; scutellum not impressed; enclosure on upper surface of metathorax forming an elongate hexagon;

petiole of abdomen scarcely as long as the first three joints of the hind tarsi united. Abdomen glabrous, black; clypeus silvery. Legs entirely yellowish testaceous. Length 3.5 mm.

New York; Pennsylvania. The form of the enclosure on metathorax seems to be subject to variation.

4. **Stigma fulvipes** n. sp.

♀.—Clypeus medially distinctly bilobate or bidentate; inner eye margins converging but little towards the mouth. Head shining, the shape from above is about like that of *inordinatus*, but it is more transverse, and is narrowed more behind; front with exceedingly fine, longitudinal striations; in addition, there is some sparse punctures, the rest of the head, especially the cheeks, with fine, separated punctures; antennæ gradually thickened, the joints of the flagellum not irregular, or perhaps the basal joints are slightly so, third antennal joint distinctly longer than the fourth, the apical joint obtusely pointed at tip and approaches the form of *fraternus* more than any of the other species; dorsulum with very fine, longitudinal striations throughout; metathorax covered with irregular fossulets, which are by far the largest posteriorly; petiole of abdomen not as long as the first two joints of the hind tarsi united. Abdomen glabrous; black; mandibles, except tips, basal half of the scape and tubercles, white; basal half of antennæ, tegulæ and legs, except the hind coxæ, reddish fulvous. Wings hyaline, nervures testaceous, stigma black. Length 5 mm.

Los Angeles, Cal. (D. W. Coquillett).



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